UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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FEB 20 2003

REPLY TO THE ATTENTION OF: SRF-5J

Mr. Johnny W. Reising
United States Department of Energy
Fernald Area Office
P.O. Box 398705
Cincinnati, Ohio 45239-8705

Subject: U.S. EPA Review of the Draft Remedial Design Package for the Silos 1 and 2 Remediation Facility

Dear Mr. Reising:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the above-referenced Remedial Design (RD) Package, dated December 19, 2002 and received by U.S. EPA on December 23, 2002. The RD Package documents the preliminary engineering and design of the remediation facility that will treat Silos 1 and 2 material.

While U.S. EPA supports the United States Department of Energy's (DOE) efforts to expand its transportation and disposal options for the Silos Project, the tasks required to facilitate disposal of treated Silos 1 and 2 material at a Permitted Commercial Disposal Facility (PCDF) have yet to be completed. These tasks include: 1) U.S. EPA approval of an Explanation of Significant Difference (ESD) document that accommodates disposal of treated Silos 1 and 2 material at a PCDF; 2) DOE and the Nuclear Regulatory Commission (NRC) entering into a Memorandum of Agreement (MOA) that will allow Silos material disposal at a PCDF as 11(e)2 byproduct material; and 3) modification of a PCDF's permits to allow disposal of treated Silos 1 and 2 material. Even with an ESD that can accommodate Silos material disposal at a PCDF, there are still uncertainties related to whether a PCDF will ultimately become available for that purpose. Also, it is not clear whether an intermodal facility currently exists that can accommodate treated Silos 1 and 2 material if intermodal transportation to NTS was needed.

While the RD Package could accommodate either direct rail shipment to a PCDF or intermodal shipment to NTS, it should also ultimately accommodate direct truck shipment to NTS consistent with: 1) the Record of Decision Amendment for Silos 1 and 2; 2) recent discussion amongst DOE and the regulators with regard to maintaining contingencies; and 3) maintaining a transportation and disposal option that is known to be implementable for treated Silos 1 and 2 material.

Due to these issues and additional review comments, U.S. EPA disapproves the RD Package. U.S. EPA's general and specific comments on the RD Package are enclosed. Please contact me at (312) 886-4591 if you have any questions.

Sincerely,

E Jablonowski

Gene Jablonowski
Project Manager
Federal Facilities Section
Superfund Division

Enclosure

cc: Tom Schneider, OEPA-SWDO
Sally Robison, U.S. DOE-HDQ
Jamie Jameson, Fluor Fernald
Terry Hagen, Fluor Fernald
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ENCLOSURE

TECHNICAL REVIEW COMMENTS ON
"SILOS 1 AND 2 REMEDIATION FACILITY
DRAFT REMEDIAL DESIGN PACKAGE"

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

(20 Pages)

Attachment to:

D-0608

"TECHNICAL REVIEW COMMENTS ON
SILOS 1 AND 2 REMEDIATION FACILITY
DRAFT REMEDIAL DESIGN PACKAGE"
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

GENERAL COMMENTS

Design Criteria Package

Commenting Organization: U.S. EPA Commentor: Jablonowski
Sections: NA Page #: Not Applicable (NA) Line #: NA
Original General Comment #: 1
Comment: While U.S. EPA supports the United States Department of Energy's (DOE) efforts to expand its transportation and disposal options for the Silos Project, the tasks required to facilitate disposal of treated Silos 1 and 2 material at a Permitted Commercial Disposal Facility (PCDF) have yet to be completed. These tasks include: 1) U.S. EPA approval of an Explanation of Significant Difference (ESD) document that accommodates disposal of treated Silos 1 and 2 material at a PCDF; 2) DOE and the Nuclear Regulatory Commission (NRC) entering into a Memorandum of Agreement (MOA) that will allow Silos material disposal at a PCDF as 11(e)2 byproduct material; and 3) modification of a PCDF's permits to allow disposal of treated Silos 1 and 2 material. Even with an ESD that can accommodate Silos material disposal at a PCDF, there are still uncertainties related to whether a PCDF will ultimately become available for that purpose. Also, it is not clear whether an intermodal facility currently exists that can accommodate treated Silos 1 and 2 material if intermodal transportation to NTS was needed.

While the RD Package could accommodate either direct rail shipment to a PCDF or intermodal shipment to NTS, it should also ultimately accommodate direct truck shipment to NTS consistent with: 1) the Record of Decision Amendment for Silos 1 and 2; 2) recent discussion amongst DOE and the regulators with regard to maintaining contingencies; and 3) maintaining a transportation and disposal option that is known to be implementable for treated Silos 1 and 2 material.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Sections: NA Page #: Not Applicable (NA) Line #: NA
Original General Comment #: 2
Comment: As discussed in the text, one of the primary goals associated with the selected remedy for Silos 1 and 2 material is to address characterization and facility acceptance criteria for off-site disposal. Since the remedial design package discusses a mechanism to meet these goals, additional information should be provided to ensure these goals can be met. While reference is made to achieve acceptance at the Nevada Test Site (NTS), other disposal facilities (such as Envirocare of Utah) are also considered. However, it is not clear how specific acceptance criteria will be met for either of these facilities. If parameters associated with the Silos 1 and 2 final waste forms have the potential to exceed current facility acceptance criteria, some discussion regarding variances, conditional approval, or special arrangements should be provided. For example, NTS specifies a radium-226 action level of

3.6E+07 Becquerel per cubic meter (Bq/m^3) of waste. This value would equate to 36 Bq/cm^3. Considering that Silos 1 and 2 final waste form densities would be about 1.5 g/cm^3, would result in a final normalized action level of about:

$$\left[\left(\frac{36 Bq/cm^3}{1.5 g/cm^3}\right) \times 2.7E-02 nCi/Bq\right] = 6.5E-01 nCi/g$$

Therefore, if final waste form activities exceed this value for radium-226, some discussion regarding NTS variance is warranted. Although the current action levels for NTS may be exceeded, an evaluation would be performed by NTS personnel to ensure that disposal cell limits are not exceeded.

Along the same lines, it is not clear that acceptance criteria for any LLW disposal facility would be met. Considering that LLW disposal facilities must meet certain requirements for radon flux out of the disposal area, additional consideration of the final waste form and compliance should be provided. Since the remedial design package fails to identify a single disposal facility for the final waste form, it is not clear that Silos 1 and 2 wastes have a final path to disposal. Additional information should be provided or referenced in the text discussing how the cement-stabilized wastes will meet certain isotopic requirements of the intended disposal facility.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Sections: NA Page #: Not Applicable (NA) Line #: NA
Original General Comment #: 3
Comment: The text provides some discussion regarding radiological sampling and analysis of the waste materials both during processing (slurry) and as a final waste form (cement-stabilized waste). However, there is some ambiguity as to what analytical method(s) will be used to radiologically characterize the waste material. The Sampling and Analysis Plan (SAP) for the Silos 1 and 2 Remediation Facility Project state that the slurry and stabilized waste forms will be analyzed using gamma spectroscopy for a suite of radionuclides. However, Table 4-1 of the SAP provides analysis (i.e. radiochemical) in addition to gamma spectroscopy. The text should more clearly present the radio-analytical methods that will be used.

If gamma spectroscopy is the only intended radio-analytical method, there is some concern that proper radionuclide characterization will be compromised. The text states that gamma spectroscopy will be able to identify the energy of specific gamma peaks and quantify the concentrations of radionuclides (e.g. protactinium-231, radium-226, thorium-228, thorium-230, thorium-232, uranium-234, and uranium-235). However, based on the gamma emission from these nuclides, it is doubtful that they all can be quantified accordingly through this method alone. Radium-226 emits a 186 keV photon with an intensity of about 3.3%. Considering that U-235 emits a photon at 185 keV (54% intensity), there is concern these peaks would not be discernable. Typically, accurate radium-226 measurement relies either on radiochemical separation followed by alpha spectroscopy or allowing secular equilibrium to be established and analyzing through gamma

spectroscopy. In the case with gamma spectroscopy the sample is placed in a sealed container and radium-226 is allowed to reach secular equilibrium with its daughters (this usually takes about 21 days). Once this is achieved, radium-226 is quantified based on the level of lead-214 that has grown in.

Th-230 and U-234 emit very low energy photons with low intensities that could not allow identification and quantification through gamma spectroscopy, as well. Considering that some degree of secular equilibrium would exist between the natural thorium and uranium daughter chains, many radionuclides will be present resulting in a high Compton edge introducing additional uncertainty.

It is suggested that a process knowledge evaluation first be conducted in which potentially reportable nuclides (i.e. those contributing greater than 1% of the total activity) be presented. Then a comprehensive sampling plan should be developed explaining how analysis will be conducted for the purposes of radiological characterization. In this regard, specific radioanalytical methods should be defined. It is suggested that isotopic uranium (U-234, 235, 238), isotopic thorium (Th-228, 230, 232) and radium-226 be analyzed through alpha spectroscopy. All other reportable nuclides should be inferred from gamma spectroscopy and/or secular relationships.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Sections: NA Page #: Not Applicable (NA) Line #: NA
Original General Comment #: 4
Comment: It is conceivable that appreciable quantities of secondary waste streams will be generated through treatment of Silos 1 and 2 material (i.e. PPE, HEPA filter media, contaminated equipment). No discussion for characterization of these items has been provided. The SAP should be expanded to include discussion for all waste streams/items generated through the treatment process.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Sections: NA Page #: Not Applicable (NA) Line #: NA
Original General Comment #: 5
Comment: Discussion is provided that indicates rail will be the transport mode used to ship the waste for disposal. However, if wastes are to be sent to NTS shipment via truck is necessary for receipt at the site. If shielded gondola cars are necessary for rail, it is not clear how transportation requirements will be met if shipment to NTS is selected. Additional information should be provided to discuss the necessary preparation if wastes are to be transported by truck.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Sections: NA Page #: NA Line #: NA
Original General Comment #: 6
Comment: Some sections of this document state that material from Silos 1 and 2 will be stabilized to attain the Nevada Test Site (NTS) waste acceptance criteria (WAC). Other sections state that the stabilized material will be shipped to an appropriately licensed off-site disposal facility. It is not clear if the NTS's WAC are the same as WAC at the other appropriately licensed off-site

disposal facilities. It may be advisable to select the disposal facility prior to treatment and stabilization of the material from Silos 1 and 2. The text should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Sections: NA Page #: NA Line #: NA
Original General Comment #: 7
Comment: A number of sections in this document refer to potential use of other stabilization chemicals for K-65 material. The treatability study shows that the only materials required for stabilization are polymer, cement, and fly ash. The text should be revised to clarify how these other stabilization chemicals will be selected and what the dosage rates will be.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Sections: NA Page #: NA Line #: NA
Original General Comment #: 8
Comment: The text states in a number of places that the tanks used for chemical stabilization will be contained in a concrete vault to protect workers from gamma radiation. The text should clarify how these workers will be protected when they enter these tanks to clear clogs. Heavy, abrasive slurries cause many handling problems. Double handling of slurries should be avoided. The text should address these potential problems and include procedures to minimize associated risks.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Sections: 1 through 3 Page #: NA Line #: NA
Original General Comment #: 9
Comment: Carbon steel is specified for the slurry receipt tanks, piping, and slurry feed tanks. Consideration should be given to the compatibility of the K-65 slurry with carbon steel in accordance with Nuclear Regulatory Commission (NRC) guidance. In addition, the text gives only one pH value of 7.52 for the K-65 slurry. Additional pH values should be provided to allow a more accurate compatibility analysis. The text should be revised as needed to address these compatibility issues.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Sections #: 2 and 3 Page #: NA Line #: NA
Original General Comment #: 10
Comment: The K-65 slurry will be monitored for density, radiation level, and pH during the stabilization process. Given the amount of heat that will be generated during this process, the text should be revised to include monitoring of the slurry temperature at critical points in the process. Section 2.1.3.7 states that thermocouple-type sensors will be used to monitor temperature but does not state where in the processor feed system they will be located. Consideration should be given to adding temperature gauges at critical locations where slurry temperatures are at a minimum or maximum. The text should be revised as needed.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2 Page #: NA Line #: NA
Original General Comment #: 11
Comment: Because of the heat and steam that will be generated from adding dry cement to the slurry, the steam and off-gases may require

pretreatment prior to discharge to the Radon Control System (RCS). The text should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2 Page #: NA Line #: NA
Original General Comment #: 12
Comment: Secondary containment is provided for slurry receipt, polymer, cement, and fly ash tanks, but secondary containment is not provided for the product mixing tanks or reaction/polymer tank. The text should be revised to discuss measures that will be taken to contain potential releases from these tanks.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 4.2 Pages #: 51 through 53 Line #: NA
Original General Comment #: 13
Comment: Section 4.2 states that flocculation studies were conducted to optimize the design of the clarifier to "produce 30-percent solids slurry or more." The text should clarify if this material can be readily pumped without causing major maintenance problems and if any pump testing has been performed to verify that the 30-percent solids slurry will not impede the stabilization process. In addition, Section 3.2 implies that the slurry concentration may need to be reduced in order to meet the process objectives in Section 3.1, which includes radiation limits set by the U.S. Department of Transportation (DOT); therefore, it may be advisable to reduce polymer dosage rather than add dilution water to the slurry feed tanks. Slurry with lower solids content will reduce wear on pipelines, pumps, and other equipment.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Appendix #: C Page #: NA Line #: NA
Original General Comment #: 14
Comment: Revision A of the sampling and analysis plan (SAP) states that wastewater from the remediation stabilization process will be treated at the Advanced Wastewater Treatment plant (AWWTP). The weekly conference call agenda for the week of January 20, 2003, stated that the AWWTP was having trouble meeting its discharge requirement of 30 parts per billion (ppb) for uranium and that "no stormwater or remediation wastewater can be treated under the scenario required to meet the 30 ppb standard." The SAP should therefore be revised to include alternatives to wastewater treatment at the AWWTP.

Drawings

Commenting Organization: U.S. EPA Commentor: Jablonowski
Drawing #: HVAC drawings Line #: NA
Original General Comment #: 15
Comment: The HVAC drawings included in this submittal do not indicate locations of motorized dampers, manual dampers, controls, or duct sizes. Section 2.3.2.3 also indicates interlocks with door switches, pressure monitors, and other equipment not shown on the drawings. The submittal should be revised to include a complete set of drawings showing the entire system and all its controls.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Drawing #: Electrical drawings Line #: NA
Original General Comment #: 16

Comment: No electrical drawings are included in this submittal. The electrical drawings should be provided to allow a proper review.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Drawing #: Mechanical drawings Line #: NA
Original General Comment #: 17
Comment: The mechanical drawings do not include piping or piping equipment such as valves, flow and density meters, and pressure and temperature gauges. In addition, no process and instrumentation drawings (P&ID) are included. The resubmittal should include all the pertinent drawings to facilitate proper review.

SPECIFIC COMMENTS

Design Criteria Package

Commenting Organization: U.S. EPA Commentor: Jablonowski
Sections #: 1.3 Page #: 6 Lines #: 7 through 10
Original Specific Comment #: 1
Comment: The text states that the treatability study shows that the only materials required for stabilizing K-65 material are polymer, cement, and fly ash. The text further states that additional piping systems are included to allow addition of other chemicals at various points in the process. The text should clarify what other chemicals are required for K-65 stabilization, and the associated piping system sizes and piping materials selected.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 1.3 Page #: 7 Lines #: 1 through 4
Original Specific Comment #: 2
Comment: The text states that the additives will be added in the reaction tank and polymer will be added in the polymer addition tank, implying the use of two separate tanks. The text should be revised to clearly indicate how many tanks will be used in this process. Figure 1-1 on page 6 indicates that the reaction/polymer tank is one unit and also shows chemical additives being added at several stages of the chemical stabilization process, including the slurry feed tanks, slurry receipt tanks, and product mixers. The text or figure should be revised as needed to resolve this inconsistency.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1 Page #: 8 Line #: 37
Original Specific Comment #: 3
Comment: The text should be revised to explain how the 5 to 10 feet per second critical transport velocity was calculated for a 30-percent solids slurry. The slurry velocity is stated as a general design guideline for all piping. However, the solids content of the slurry ranges from 15 percent to 30 percent solids through the stabilization process. Typically, a 15-percent solids slurry requires a much higher transport velocity to prevent settling of solids. Slurry with a solids content of 30 percent is transported at a much lower velocity because of the use of positive displacement pumps. The pipe design should consider the percent solids in the slurry when determining the critical transport velocity.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1 Page #: 8 Line #: 38
Original Specific Comment #: 4
Comment: The second item of the general design guidelines states that double-contained pipe will be used in outdoor areas. It may be advisable to specify that double-walled pipe will be used throughout the facility. Additionally, the text should be revised to explain how outdoor pipes will be kept from freezing.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.1 Page #: 9 Line #: 14
Original Specific Comment #: 5
Comment: The text states that 5 to 15 percent solids materials from Silos 1 and 2 will be pumped at approximately 350 gallons per minute (gpm) from the transfer tank area (TTA) to slurry receipt tanks. Section 1.3, Page 6, Line 17, states that 15 percent solids materials from Silos 1 and 2 will be pumped at approximately 350 gpm. The text should be revised to resolve this discrepancy.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.1 Page #: 9 Lines #: 27 through 33
Original Specific Comment #: 6
Comment: The paragraph states that each slurry receipt tank will complete one filling and emptying cycle in 36 hours. The text should clarify the volume or flow rate, and explain how the volume or flow rate will be measured, and indicate the total volume of each tank.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.1.3 Page #: 10 Lines #: 31 through 33
Original Specific Comment #: 7
Comment: The last sentence of Paragraph 3 states personnel access to the slurry transfer pumps will be limited for monitoring and maintenance. The text should clarify how these pumps and associated piping will be shielded to protect workers performing monitoring and maintenance activities.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.1.4 Page #: 10 Lines #: 41 through 43
Original Specific Comment #: 8
Comment: The text states that "under manual operation, a manual position switch is installed for correct valve alignment." The text should be revised to explain the function of the manual position switch. It is not clear how this will work. Typically, three-way valves are equipped with limit switches that provide contact to indicate remotely the valves' position. The limit switches work if the valve is operated in automatic or manual mode.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.1.6 Page #: 11 Lines #: 21 through 31
Original Specific Comment #: 9
Comment: This section states that slurry samples will be collected using an isolock-type sampler inside a glove box. The text should be revised to state how the sample will be decontaminated and how the required tests will be performed while ensuring worker health and safety.

Commenting Organization: U.S. EPA Commentor: Jablonowski

Section #: 2.1.1.7 Page #: 11 Line #: 45
Original Specific Comment #: 10
Comment: The text states that slurry density is measured at a point in the recycle loop using a "densitometer." Paragraph 2.1.1.6 states that slurry samples will be collected to determine the total percent solids to determine additive requirements. It is not clear why the densitometer and flow meter will not be used to control the polymer dosage rate. This system can adjust the dosage rate to the actual density and flow variation and therefore minimize chemical usage. The text should be revised as needed to address this issue.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.1.8 Page #: 12 Lines #: 10 through 15
Original Specific Comment #: 11
Comment: The text discusses flushing of the slurry discharge line, slurry transfer line, and sampling lines; however, flushing of the slurry pump's suction line is not discussed. The text should be revised to explain if the slurry pump suction line will be flushed and where flush water will be discharged.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.2 Page #: 12 Lines #: 21 through 26
Original Specific Comment #: 12
Comment: The text does not indicate the retention time in the "reaction/polymer addition tank" or which other chemical additives may be used. The text should be revised to address these issues.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.2.1.1 Page #: 12 Lines #: 38 through 47
Original Specific Comment #: 13
Comment: This section describes the polymer system. It is not clear why the polymer solution will be prepared in two 500- gallon polymer feed tanks from neat polymer. The polymer solution would sit in the tanks for more than 6 hours before being used up. Systems are available that can pump neat polymer, mix it with water to the desired concentration, age it in an internal chamber, and deliver it, on demand, at the proper concentration and dosage rate. These systems can also be controlled by an outside signal from flow meters and/or density meters. The text should be revised to explain why the large polymer solution feed tanks will be used.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.2.1.1 Page #: 12 Lines #: 45 and 46
Original Specific Comment #: 14
Comment: The sentence stating that the polymer is "allowed to age" should be revised to state if mixing will occur during the hour that the polymer ages. Allowing the polymer to "age" without mixing may cause problems with material settling out in the polymer tank or problems pumping the polymer to the polymer addition tank due to varying viscosity of the polymer.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.2.1.2 Page #: 13 Lines #: 8 through 16
Original Specific Comment #: 15
Comment: General Comment No. 2 applies here and should be addressed.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.2.1.2 Page #: 13 Lines #: 20 through 32

11

Original Specific Comment #: 16
Comment: The text states that the reaction/polymer tank is divided into two sections with a baffle, the reaction section and the polymer addition section, each equipped with a variable speed mixer/agitator. The text in Section 2.1.2.1.1 also states that polymer will be added to the polymer addition section of this tank. The text should clarify the function of the reaction section of this tank.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.2.3 Page #: 14 Lines #: 1 and 2
Original Specific Comment #: 17
Comment: The first paragraph states that the thickened slurry will be monitored for radiation level and density, and the supernatant water from the clarifier will be monitored for turbidity. The text should be revised to clarify the monitoring equipment that will be used to monitor radiation level, density, and turbidity.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.3 Page #: 14 Lines #: 18 through 36
Original Specific Comment #: 18
Comment: The text states that thickened slurry (30 percent solids by weight) will be pumped from the bottom of clarifier to one of three slurry feed tanks. The text should explain why this thickened slurry will be pumped to these large tanks before being pumped to the stabilization mixers. The slurry could be pumped from the clarifier directly to the stabilization mixers, eliminating the need for the slurry feed tanks and its pumps. The 30-percent slurry may cause settling problems in storage tanks, pumps, piping, and valves, and the abrasive material may damage mixing equipment such as impellers and mixer shafts, which could bend under the heavy load. Maintenance could require constant process stoppage and be labor intensive.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.3 Page #: 14 Lines #: 21 through 23
Original Specific Comment #: 19
Comment: The slurry feed tanks are contained in a shielded vault not intended for personnel access. The text should be revised to explain how the pumps and associated piping for these tanks will be shielded to provide protection to workers performing monitoring and maintenance activities.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.3.1 Page #: 14 Lines #: 44 and 45
Original Specific Comment #: 20
Comment: The text states that the slurry feed tanks will have cooling water jackets to remove heat resulting from agitation. The text should identify the source of this jacket water, explain how the heat is removed from this water, and explain if this water will require treatment.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.3.3 Page #: 15 Lines #: 21 through 26
Original Specific Comment #: 21
Comment: The text states that three pumps will be used to transfer thickened slurry to the product mixers but does not specify the type of pumps. The text should clarify the pump type.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.3.4 Page #: 15 Lines #: 39 through 42
Original Specific Comment #: 22
Comment: The text states that "pinch valves will be used on primary slurry lines to minimize pluggage and flow restrictions." Pinch valves work well on organic type sludges and some slurries; however, they may not close properly when a 30-percent slurry is pumped. The text should explain if these valves were tested on 30-percent slurry similar to K-65 material or be revised to explain how the pinch valves were chosen.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.3.4 Page #: 16 Lines #: 35 through 36
Original Specific Comment #: 23
Comment: The text states that a radiation measurement of the slurry will be taken to measure the gamma dose that may impact waste transport criteria. However, it is unclear what quantitative criteria will be applied in order to make a determination that transportation requirements could be compromised. Additional information should be provided explaining specific dose level criteria and what actions will be performed to ensure that final waste forms meet specific dose-rate requirements.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.3.6 Page #: 16 Lines #: 15 through 25
Original Specific Comment #: 24
Comment: The text states that the thickened slurry is sampled from the slurry recycle loop. The text should explain how often the slurry will be sampled and the turnaround time for sample analysis. In addition, the text should explain how the batch recipe will be adjusted to ensure that the final product meets transport and disposal requirements.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.3.7 Page #: 16 Lines #: 37 through 39
Original Specific Comment #: 25
Comment: The text states that each of the slurry feed tanks has "a separate pressure relief and vacuum relief valves to prevent pressurization or vacuums above the tank design." The text should explain how a pressure or a vacuum could develop inside these tanks, which would exceed the tank design levels. According to Section 2.1.3, the tanks are connected to the RCS system to control radon emissions. The RCS system operates on very low pressure and vacuum.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.4.1.2 Pages #: 17 and 18 Lines #: 38 and 42
Original Specific Comment #: 26 41 and 42
Comment: The text states that the cement and fly ash will be fed by gravity from the bins into the respective feeder through an inflatable, seated butterfly valve. The text should explain how this valve will be inflated and indicate the valve manufacturer.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.8 Page #: 22 Lines #: 1 through 4
Original Specific Comment #: 27
Comment: The text states that the scrubber water is recirculated in the scrubber until the solids buildup to approximately 5 to 10 percent, then the scrubber solution is recycled back to the

supernatant tank or slurry feed tank. Scrubbers use water spray nozzles with very small openings. Typically, spray-water for scrubbers is free of solids. Recirculating the internal solution laden with 5 to 10 percent solids may affect efficiency of the scrubber by clogging up these nozzles. In addition, the scrubber solution is typically removed and not recycled as stated. The text should be revised to address these issues.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2.1.1 Page #: 23 Line #: 24
Original Specific Comment #: 28
Comment: The text refers to "accumulating conveyors." The text should be revised to clarify the meaning of this phrase.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2.1.2 Page #: 23 Lines #: 40 through 47
Original Specific Comment #: 29
Comment: The text describes movement of containers through room 114. A simple diagram or drawing should be included to show this process.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2.1.3 Page #: 24 Lines #: 21 and 22
Original Specific Comment #: 30
Comment: The text states that defective containers are removed and returned to the vendor. However, Line 42 on this page states that defective containers are "moved by forklift to a holding/repair area," implying that they are repaired on site and not returned to the manufacturer. The text should be revised to resolve this apparent discrepancy.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2.2.2 Page #: 26 Lines #: 1 through 9
Original Specific Comment #: 31
Comment: The text states that the containers are filled by a chute attached to a discharge valve from the mixer above and that the fill chute is equipped with an extended bellows so that the fill chute is coupled to the container opening. When the product is flowing through this fill chute, it will tend to adhere to the chute walls, specifically in the bellows section. Once the chute is uncoupled from the containers, the material will drip out of the chute and contaminate the outside of the container. One way of solving that problem is to install a redundant valve (knife valve) at the bottom of this chute. This valve could be used to contain material in the chute that would otherwise drip out when the chute is disconnected from the container. The text should be revised to address these issues.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2.2.3 Page #: 26 Lines #: 13 through 18
Original Specific Comment #: 32
Comment: Container inspection is to be performed remotely due to the potentially high exposure-rate from the waste containers. This being the case, it is not clear how decontamination activities will be performed. The text should be expanded to discuss decontamination efforts, when needed.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2.2.5 Page #: 26 Lines #: 37 through 39

Original Specific Comment #: 33
Comment: The text states that every second container will be sampled. The text should clarify how these samples will be collected. The text also states that after the samples have cured, they will be examined for free liquids. The text should clarify the sample curing time prior to toxicity characteristic leaching procedure (TCLP) testing as well as how "free liquid" in the sample will be addressed. If free liquid is observed, it is very possible that free liquid is also present inside the sealed product container from which the sample was collected.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2.2.5 Page #: 26 Lines #: 39 through 42
Original Specific Comment #: 34
Comment: The text states that one sample will be sent to a laboratory for analysis and the other sample will be stored in the container fill room. Typically, cement-stabilized soil mixtures need to be cured for 28 days and should be cured under the same conditions as the product. The American Society for Testing and Materials (ASTM) Method C618 requires that the pozzolanic activity index with Portland cement be a minimum of 75 percent of the average 28-day compressive strength of control mixes made with Portland cement. The text should indicate how long the samples will be cured on site in the container fill room prior to shipment for laboratory analysis and if these samples will be stored in sealed containers to replicate the same conditions the product will undergo.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2.2.5 Page #: 27 Lines #: 12 through 15
Original Specific Comment #: 35
Comment: The last sentence of the paragraph states that samples may be collected from the fill chute and deposited into an attached container. The method used to obtain these samples should be clarified. Specific Comment No. 34 also applies here and should be addressed.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2.3 Page #: 27 Lines #: 19 through 46
Original Specific Comment #: 36
Comment: The text does not indicate how long the filled containers will remain on site. From the time the samples are collected, cured, shipped to laboratory for analysis, and analyzed, several weeks may pass before the test results are available. The text should also indicate what will be done if the samples fail TCLP analysis.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2.3 Page #: 27 Line #: 32 through 45
Original Specific Comment #: 37
Comment: The text states that the loaded 15-ton containers will be placed into seven steel-lined transport cells with lids inside the gondola rail car. The text also states that the loaded 15-ton containers may be transported by truck and that containers with high radiation levels will be placed in railcars with containers having lower radiation levels to meet DOT dose rate requirements (Title 49 of the *Code of Federal Regulations* 173.441). The text should explain how low-level radiation and high-level radiation containers will be placed to meet DOT dose rate requirements if the containers will be transported by truck. The DOT truck legal

load limit is 80,000 pounds, or 40 tons. Presumably, these trucks will have steel shielding with lids that will add to the trucks' weight to a point where only one container can be legally transported per truck. In this case, the text should explain how a container of high-level radiation material will be handled if it is transported by truck.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.3.1 Page #: 28 Lines #: 17 through 26
Original Specific Comment #: 38
Comment: The third sentence states that the HVAC system will be maintained under negative pressure of -0.25 to -1.50 inch water column. The text should state how these values were determined and how this pressure differential will be adequate to maintain negative pressure in the remediation building.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.3.2 Page #: 29 Lines #: 4 through 13
Original Specific Comment #: 39
Comment: The text states that the "occupied areas of the Remediation Building are maintained at a slightly negative pressure" and "the areas with potential for contamination are maintained at a slightly more negative pressure to ensure that all air exchange between a normally occupied area and a potentially contaminated area is always towards the latter..." The text should explain how this will work without the use of airlock doors. Typically, when a door is opened between two rooms with only a slight pressure differential between them, the pressure will equalize rather quickly. An average door has an opening of 20 square feet, which is much larger than any air "inlet" or "outlet" to those rooms. Also, if there is a temperature gradient between the two rooms, a back flow can be created from the more contaminated area to the clean area. The text should be revised to address these issues.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.3.2 Page #: 29 Lines #: 19 through 36
Original Specific Comment #: 40
Comment: The ventilation air exchange rates should be described in terms of air velocity or air volume exchanged per hour. The equipment used to measure air exchange rates should also be specified.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.3.2 Page #: 29 Lines #: 21 through 36
Original Specific Comment #: 41
Comment: The text indicates that some areas of the building will be maintained at temperatures of up to 103 °F. This high temperature may affect some electronic controls, surveillance, and instrumentation located in the areas exposed to elevated temperatures. Typically, electronic equipment should not be operated outside the manufacturer's specified temperature range. The text should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.3.2.1 Page #: 29 Line #: 40
Original Specific Comment #: 42
Comment: The text in the first line is not clear. Typically, the capacity of air-conditioning units is presented in tons or British thermal

units per hour (Btu/hr). The text should be corrected accordingly.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.3.2.1 Page #: 29 Lines #: 44 and 45
Original Specific Comment #: 43
Comment: The text indicates the use of space heaters. Space heaters should only be used in areas where flammable or explosive atmospheric hazards are not present. The text should be revised to specify that explosion-proof space heaters will be used.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.3.2.2 Page #: 30 Lines #: 6 and 7
Original Specific Comment #: 44
Comment: The text states that each filter train of the air exhaust system has two stages of high-efficiency particulate air (HEPA) filters in series with a combined removal efficiency of 99.97 percent. Typically, HEPA filters are rated at 99.97 percent efficiency. The text should explain why two filters with the same removal efficiency are used in series. When two HEPA filters are used in series, the filters should be higher than the efficiency for a single filter.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.3.2.3 Page #: 30 Lines #: 21 through 24
Original Specific Comment #: 45
Comment: The text states that "motorized dampers are provided in the supply ducts to rooms that receive conditioned air directly from the air conditioning units (ACU)" and that "these dampers provide the ability to isolate the supply air and maintain each room's differential pressure when a door is opened that breaches the cascade ventilation system boundary." If the supply air damper in the air supply duct, which normally has higher pressure, is closed, and a door to that room is opened from the adjacent room, which has a lower pressure, then the pressure in both rooms will equalize rather quickly. If there is a temperature gradient between the two rooms, it is very possible that the air from the contaminated area will be drawn into the clean room by the temperature differential across the open door. Air lock doors are commonly used to minimize cross contamination. The HVAC design should be reviewed and the text should be revised to address these issues.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.3.2.3 Page #: 30 Lines #: 39 through 43
Original Specific Comment #: 46
Comment: The text states that "motorized isolation dampers are installed in the transfer ducts between Zone 3 and Zone 2 rooms so that Zone 3 rooms can be isolated from the rest of the HVAC cascade ventilation system..." If dampers in the duct work between rooms in Zones 3 and 2 are closed, air in the rooms in Zone 3 still blows into those rooms. It is also not clear which way the doors open in those rooms. If the air source is cut off to rooms in Zone 2 and the exhaust fans are operational, it may be difficult to open or close the doors, depending on which way they open. The text should be revised to explain clearly how this system will work.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.3.2.4 Page #: 31 Lines #: 3 through 5
Original Specific Comment #: 47
Comment: The text states that the "exhaust duct will be round, galvanized steel of welded construction with welded joints." Welding galvanized steel materials will damage the zinc coating. Other types of joints should be considered, such as gasketed flange joints. The text also does not state what type of galvanization will be required and if outside, inside, or both inside and outside surfaces will be galvanized. The text should be revised to address these issues.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.3.2.7 Page #: 31 Lines #: 43 and 44
Original Specific Comment #: 48
Comment: Specific Comment No. 42 also applies here and should be addressed.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.4.1 Page #: 32 Line #: NA
Original Specific Comment #: 49
Comment: The text discusses logistical support; however, the use of trucks to transport filled product containers is omitted. Truck use for transportation of filled containers is discussed in previous sections. The text should be revised to include truck transport of product-filled containers.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.4.1 Page #: 32 Lines #: 16 and 17
Original Specific Comment #: 50
Comment: The text indicates that four gondola railcars will be loaded with the product-filled containers daily and then assembled into trains of 60 to 65 railcars. The text should clarify how long the filled containers will remain on site from the time they are initially filled, and if the product will be cured for 28 days prior to loading and shipment.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.4.1.2 Page #: 33 Lines #: 10 through 14
Original Specific Comment #: 51
Comment: The text should be revised to explain how the product containers will be secured in the gondola railcars.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.5.1.2 Page #: 35 Lines #: 8 and 9
Original Specific Comment #: 52
Comment: The text states that "there will be 1 to 2 minute power outage until backup power is available." Usually, standby power generators can be on line within seconds. An automatic transfer switch can switch from the primary power (the utility) to the standby power (the generator) in less than 15 seconds. The text should be revised to explain this long power outage.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.5.3.2 Page #: 36 Lines #: 10 and 11
Original Specific Comment #: 53
Comment: The text states that the emergency showers will be connected to the domestic water system. American National Standards Institute (ANSI) Method Z3558.1-1998 requires that the water for emergency

shower be "tepid" (moderately warm or lukewarm). The text should clarify how this water temperature will be achieved.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.5.3.4 Page #: 37 Lines #: 19 through 21
Original Specific Comment #: 54
Comment: The source of process chilled water should be specified.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.5.3.5 Page #: 37 Lines #: 28 and 29
Original Specific Comment #: 55
Comment: The text states that the seal water tank is equipped with a low-level indicator. The low-level indicator should initiate an alarm when the low level is reached. The text should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 3.1 Page #: 39 Lines #: 20 through 26
Original Specific Comment #: 56
Comment: The text states that the process objective is to treat materials from Silos 1 and 2 to meet an appropriately licensed off-site disposal facility's WAC for disposal. The text also states that some other objectives are included in case the product is disposed of at the NTS. The off-site disposal facility has apparently not been selected yet. It will be difficult to treat material to meet WAC without knowing where the treated product will be disposed of. The text should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 3.1 Page #: 39 Lines #: 28 and 29
Original Specific Comment #: 57
Comment: A contingency plan should be provided if water or other free liquid is present on top of the final packaged material. Consideration should also be given to the effect of transport and vibration on the stabilized product, including the creation of free-liquid on the product surface. These issues should be addressed.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 3.2 Page #: 40 Lines #: 28 and 29
Original Specific Comment #: 58
Comment: The text states that "the stabilization recipe will contain amounts of additives that will be valid for a range of lead concentrations..." The text should specify the range of lead concentrations and the additives that will be used.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 3.3.1.2 Page #: 41 Lines #: 26 through 28
Original Specific Comment #: 59
Comment: The text indicates that Ra-226 will be determined through direct measure or a correlated indicator. Caution should be exercised here since variable isotopic distributions could lead to considerable uncertainties if indirect characterization methodologies are applied. Additional information should be provided discussing how a correlated indicator will be established and verified for application.

Commenting Organization: U.S. EPA Commentor: Jablonowski

Section #: 3.3.1.3 Page #: 42 Line #: 23
Original Specific Comment #: 60
Comment: Table 3-1 lists a sample frequency of one per batch during "startup/upset" for the product mixer fill chute. Section 2.2.2.5, Line 27, states that every second container will be sampled, which is every second batch. The text should be corrected to agree with Table 3-1. The table also indicates that one sample per 15 batches will be collected from the product mixer fill chute, as an initial control. This frequency seems inadequate because the concentration of the slurry will be altered in order to control radiation. Because the slurry concentration will be varied, so will the quantities of cement, fly ash, and other unnamed chemical additives. A sample should be collected and analyzed each time the slurry concentration needs to be changed. The text should be revised to address this issue. Finally, the table indicates that slurry feed tank sampling will also be reduced. Each slurry feed tank should be sampled to determine if the slurry concentration needs to be adjusted to lower radiation to comply with DOT requirements. Without sampling each slurry feed tank content for solids and Radium 226 (Ra-226), there is no way of determining if the slurry concentration needs to be adjusted. The text should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 3.3.2.1 Pages #: 43 and 44 Line #: NA
Original Specific Comment #: 61
Comment: The text should include training requirements for the remediation process operator in accordance with Occupational Safety and Health Administration (OSHA) regulations.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 3.3.2.4 Page #: 45 Lines #: 8 through 18
Original Specific Comment #: 62
Comment: The text states that the operator will adjust the rate of cement and fly ash additives based on the slurry's percent solids and Ra-226 content. The text should be revised to state if the analytical parameters will be analyzed in real-time or if there is a delay between slurry testing and obtaining the results.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 3.4.8 Page #: 49 Lines #: 15 through 18
Original Specific Comment #: 63
Comment: The text states that an operator will visually inspect the containers for external contamination. While it is evident that spilled cement waste would be visible on the exterior of the container. Fugitive dusts and light surficial contamination would not. In this regard, it is not clear what credence visual examination has with regard to verifying compliance with external contamination requirements. The text should be clarified to explain that only gross contamination (i.e. from stabilized media) would be appropriate for visual examination.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 3.4.9 Page #: 49 Lines #: 28 through 30
Original Specific Comment #: 64
Comment: The text states that containers with high radiation levels will be placed in railcars with containers having lower radiation levels to meet DOT requirements. According to Section 3.4.3, each slurry

feed tank is sized to produce at least 10 product batches. If the slurry in the feed tank is highly radioactive, then all 10 product batches will most likely be highly radioactive. The railcar can hold seven product containers. If 10 product containers with high radiation levels are produced, they must be stored somewhere because only one or two highly radioactive containers will be loaded onto the railcar. It is not clear where the other product containers will be stored. Finally, it is not clear how long the product containers will remain on site after filling. The text should be revised to address these issues.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 4.2 Page #: 53 Lines #: 6 through 9
Original Specific Comment #: 65
Comment: The text states that a "higher percent solids of K-65 slurry than used in the baseline design are possible in the clarifier underflow under normal operating conditions." The text should clarify why a higher concentration slurry needs to be produced from the clarifier if the material will require dilution in the slurry mixing tanks in order to meet DOT radiation limits for transportation of product containers.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 4.3 Page #: 53 Line #: NA
Original Specific Comment #: 66
Comment: It is not clear how long the stabilized K-65 material will be cured prior to TCLP analyses. The text should be revised to include this information.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 4.3 Page #: 55 Lines #: 33 and 34
Original Specific Comment #: 67
Comment: Previously, the text identifies NTS as the disposal facility. Here, the text identifies Envirocare of Utah as a potential disposal facility. The text should clarify if both of these facilities will be used for disposal of the stabilized K -65 material, and if so, the WAC for each facility.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 4.3 Page #: 56 Lines #: 11 through 24
Original Specific Comment #: 68
Comment: It is not clear to this reviewer that a 6-day period is sufficient to demonstrate compliance with internal pressure requirements. A curing period alone may not be acceptable for off-site disposal. A time period from when the waste is generated to when it is realistically placed in a disposal cell (including potential down-time) should have been considered. Additional information should be provided to ensure that internal pressures will not exceed 1.5 atmospheres even after considerable storage periods.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 5.4.1 Page #: 58 Lines #: 29 through 36
Original Specific Comment #: 69
Comment: The text states that "the radon treatment capacity was expanded to support concurrent operation of the AWR and Silos 1 and 2 Remediation Facility." The text only mentions the initial airflow into the RCS system prior to the chilling/drying unit and carbon beds. The text should explain if the additional moisture removed

from the Silos 1 and 2 remediation facility will have a detrimental effect on the moisture removal system of the RCS. The text should also indicate any effects the additional heat generated during the stabilization process will have on the RCS.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 5.5.1 Page #: 59 Lines #: 27 through 35
Original Specific Comment #: 70
Comment: The text describes three waste retrieval operating modes. Another scenario could involve retrieval of slurry from one of the silos, bypassing the transfer storage tanks and pumping the slurry directly into the slurry receipt tanks. This approach is similar to the concurrent silo waste retrieval system (SWRS) and transfer storage tank waste retrieval system (TWRS) and does not require the use of transfer storage tanks. The text should address this scenario.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Figures #: 5-1, 5-2, and 5-3 Pages #:60,62,63 Line #: NA
Original Specific Comment #: 71
Comment: The symbol for a closed valve should be added to the figures.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 5.6 Page #: 61 Line #: 33 through 41
Original Specific Comment #: 72
Comment: The text states that "the (water storage) tanks are equipped with level instruments to control domestic fill water valve, based on tank level, so that the tanks maintain adequate levels of stored water." The text also states that the "tanks have sufficient capacity to supply the silo sluicers with backup water at full flow for approximately one hour." If an adequate level of water is kept in the tanks, there should be an unlimited supply of backup water for the sluicers. If only 1 hour of backup water is available in the storage tanks, the fill valve and the water supply line may not be of adequate size. The text also does not specify the maximum fill rate for these storage tanks. The text should be revised to address these issues.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Table #: 6-2 Page #: 72 Line #: NA
Original Specific Comment #: 73
Comment: The dispersion modeling results for releases from Silos 1 and 2 of remediation air should be compared to federal and Ohio radiation requirements. The table should be revised accordingly.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 6.2.2.2 Page #: 75 Lines #: 19 and 20
Original Specific Comment #: 74
Comment: The stone size specified for check dam construction should reference the appropriate Ohio Construction and Material Specifications or ASTM standard.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 6.2.2.2 Page #: 75 Line #: NA
Original Specific Comment #: 75
Comment: The minimum "Factor of Safety" for check dam design should be stated in this section.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 6.3.7.2 Page #: 81 Line #: 20
Original Specific Comment #: 76
Comment: The best available technology (BAT) for dust control should reference standard Fernald operating procedures.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Appendix #: A-3 Pages #: A-14 Line #: NA
Original Specific Comment #: 77
Comment: It is the understanding that pre-filters and high efficiency particulate air (HEPA) filters will be used to support the negative air system associated with the project. Since the waste feed material is considered hazardous, it is not clear that fugitive heavy metal emissions would not create secondary mixed wastes from this effort. Additional information should be provided to justify that the filter would not be hazardous or the text should be revised to include these items as potential mixed waste.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Appendix #: B-1 Pages #: B-2, B-3, B-4 Line #: NA
Original Specific Comment #: 78
Comment: The figures are from the "Ohio Rainwater and Land Development Manual." This source should be referenced in the figures.

Drawings

Commenting Organization: U.S. EPA Commentor: Jablonowski
Drawing #: 94X-3900-F-01190 Section #: NA
Original Specific Comment #: 79
Comment: The process flow diagram should show the flow direction from the slurry receipt tanks to the slurry feed tanks.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Drawing #: 94X-3900-F-01103 Section #: NA
Original Specific Comment #: 80
Comment: Process step 3.36 states that defective containers will return to step 3.1, which states that the temporary lid fasteners should be removed, creating a unending loop. The flow diagram should be revised to alleviate this continuous, unending loop.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Drawing #: 94X-3900-F-01948 Detail #: 2
Original Specific Comment #: 81
Comment: The silt fence detail should be revised to show a 5-foot separation between the toe of the slope and the silt fence in accordance with the "Ohio Rainwater and Land Development Manual."